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ABSTRACT

A pre-test on knowledge of the metric system was administered to elementary mathematics methods classes at the University of Nevada at the beginning of the 1975 Spring Semester. A one-hour lesson was prepared and taught regarding metric length, weight, volume, and temperature. At the end of the semester the original test was given as the post-test. This paper gives the results of both tests and concludes that, even though not significant, improved knowledge was noted in the areas surveyed. It is stated that more than one hour may be needed to teach metrication to future elementary teachers, but one hour is valuable. (JBW)

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Metric Education in Mathematics Methods Classes

By

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At the beginning of the 1975 Spring Semester, a pre-test on knowledge of the metric system was administered to students enrolled in elementary mathematics methods classes at the University of Nevada, Reno in order to determine whether or not a lesson on metric education should be included in the course. As the survey indicated a need, a one hour lesson was prepared and taught. The lesson consisted of having the students measure objects with a centimeter tape, weigh themselves in kilograms, measure the volume of a tin can in milliliters, and to record the temperature of the room and warm and cold water in degrees Celsius. At the end of the semester the same test that was earlier given was administered as a post test. The results of the pre and post tests are shown in Table I.

Table I

Knowledge of Metric System Questionnaire

1. The average lineman to the National Football League weighs:
   - A. 15 Kilograms
   - B. 115 Kilograms
   - C. 225 Kilograms
   - D. 324 Kilograms
   - E. 425 Kilograms

	Correct Response	Incorrect Response
Pre-test	10(18.51%)	34(62.96%)
Post-test	18(50%)	18(50%)

Chi Sqd. = 5.33023 Sign Level = .05

SE 019 738

2. The height of the average American male is:

A. 1.85 Centimeters
B. .185 Meters
C. 1.85 Meters
D. 18.5 Meters
E. 18.5 Centimeters

	Correct Response	Incorrect Response
Pre-test	23(42.595)	21(38.88%)
Post-test	26(72.22%)	10(27.77%)
Chi Sqd. = 2.53277		Sign Level = n.s.

3. The average American car gasoline tank holds:

A. 80 Liters
B. 180 Liters
C. 8 Liters
D. .8 Liters
E. 1800 Liters

	Correct Response	Incorrect Response
Pre-test	11(20.3%)	33(61.11%)
Post-test	15(41.66%)	21(58.33%)
Chi Sqd. = 1.80494		Sign Level = n.s.

4. Match the below numbers to the letters:

A. Meter	1. .001 Meter
B. Centimeter	2. .01 Meter
C. Millimeter	3. 39.37 Inches
D. Kilometer	4. .1 Meter
E. Decimeter	5. 1000 Meters

	Correct Response	Incorrect Response
Pre-test	15(27.77%)	29(53.50%)
Post-test	22(61.11%)	14(38.88%)
Chi Sqd. = 4.7789		Sign Level = .05

5. The temperature on a hot day in central Nevada is about:

A. 27° Celsius
B. 212° Celsius
C. 37° Celsius
D. 100° Celsius
E. 47° Celsius

	Correct Response	Incorrect Response
Pre-test	4(9.09%)	40(90.90%)
Post-test	6(16.66%)	30(83.33%)
Chi Sqd. = .46176		Sign Level = n.s.

6. Do you feel qualified to teach arithmetic courses in which the metric system is taught or used?

	Yes	No
Pre-test	2(4.5%)	42(95.4%)
Post-test	18(50%)	18(50%)
Chi Sqd. = 19.4613		Sign Level = .001

From Table I, it may be seen that significant differences occurred for questions relating to weight and metric prefixes. Even though not significant, improved knowledge was noted in all areas surveyed by the questionnaire. However, this may also indicate that more than one hour is needed to teach metrication to our future elementary teachers.

It can readily be observed that by far the largest significant difference was on the question, "Do you feel qualified to teach arithmetic courses in which the metric system is taught or used?" The fact that after one hour of training in metrication a high percentage of the students felt that they were qualified to teach courses in which the metric system is used, would seem to indicate that even one hour of metric education is valuable to pre-service teachers.